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| APPLICATION NO | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO |
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| ART UNIT | PAPER NUMBER |
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/740,513

Applicant(s)

TAKIZAWA ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

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DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

"5a" (Figures 1-3) and "11a" (Figures 1 and 2). Correction is required.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities: on pages 7-15 of the specification, it is not clear why the following terms contain duplicate reference numbers, as only one reference number is shown in the drawing(s) in each case: "plate bodies 51 and 51", "agitating wings 24 and 24", "support shafts 40 and 40", and "members 41 and 41". Throughout the specification, the term "feeing device 15" should be changed to "feeding device 15". Appropriate correction is required.

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Claim Objections

4. Claims 1-7 are objected to because of the following informalities: in claim 1, "an" should be changed to "a" before "rear-end" in line 7 of the claim. In claim 1, 3rd line from the bottom, "slidably freely" should be changed to "freely slidable". The word "CLAIM" in claims 1-7 should be deleted so that only a number remains. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The function and structure of the "plurality of stripes" of the "agitating wings" is not disclosed in the specification or the drawings.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the injection mechanism". There is insufficient antecedent basis for this limitation in the claim.

The term "stripes" in claim 1 is an unclear term which renders the claim indefinite. It is unclear to what structure the term "stripes" is referring, as the "agitating wings 24" do not include "stripes" as a substructure in any of the drawings. The specification also does not disclose the function of these "stripes".

Claims 1, 4, 6, and 7 are generally narrative in content, as these apparatus claims contain process limitations. These claims should be revised to positively and directly claim the invention.

Claim 3 recites the limitation "the inside". There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the hydraulic cylinder side". There is insufficient antecedent basis for this limitation in the claim.

The term "an upper of" in claims 4 and 7 is an unclear term which renders the claims indefinite. It is unclear as to what location the term "an upper of" is referring. It is suggested to replace "of" with "portion", in addition to giving a reference point, in each case, for further clarity.

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Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/672,388 in view of Kono (US 5,836,372).

09/672,388 teaches an injection molding apparatus that is comprised of an apparatus platform (base), a rotating and translating screw, a heating cylinder, feeding means, an inclined position (angle), and a predetermined quantity (metered portion) of molten metal that flows by self-weight. 09/672,388 does not teach an agitating member with agitating wings.

However, Kono discloses an injection molding system that includes feeding means, a heating cylinder, and a pair of mixers with stirrer motors, or agitating means with wings (abstract; column 2, lines 26-34; column 3, lines 10-23 and 42-50; column 4, lines 27-46; and Figures 1-4). These stirrers (agitating means) are advantageous for

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the purpose of evenly distributing the heat from the heating elements, and assuring that the ratio of solid and liquid is consistent throughout the thixotropic metal alloy material (column 3, lines 21-23 and 45-50).

It would have been obvious to one of ordinary skill in the art to modify the injection molding apparatus of 09/672,388 by adding the stirrers disclosed by Kono, in order to evenly distribute heat from the heating elements, and assure that the ratio of solid and liquid is consistent throughout the thixotropic metal alloy material (Kono; column 3, lines 21-23 and 45-50).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley et al. (US 5,040,589) in view of Kono (US 5,983,976), and further in view of Kono (US 5,836,372).

Bradley et al. disclose a method and apparatus for injection molding of metal alloys in which the injection molding (weighing) chamber includes a rotatable screw for injecting a metered amount of material into a mold (metering chamber), a hydraulic driving means with a coupler (tie-bar), a sprue (gate), a support platform, clamping means, heating means surrounding the screw chamber, a nozzle member within a tip portion, and a non-return valve assembly (seal ring) to prevent backflow of material (abstract; column 2, lines 21-30; column 3, lines 21-34 and 59-68; column 4, lines 1-39; column 7, lines 48-64; column 9, lines 29-53; and Figures 1 and 3). An injection molding screw (with screw flights, or projected portions, around the screw axis with a clearance for sliding) rotates and translates within a heating chamber, and a feeding

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means (hopper 11) introduces a metered amount of (granular) metal alloy material into the rear portion of the screw chamber (positioned in front of the feeding opening), wherein the metal material is heated in a heating cylinder (via resistance heaters) and subsequently injected in the molten state at the foremost portion of the screw (abstract; column 3, lines 10-54; column 4, lines 12-39; column 5, lines 62-68; column 6, lines 1-3; column 7, lines 3-11; column 9, lines 29-53; and Figures 1, 3, and 4). Bradley et al. do not teach inclined positioning of the apparatus.

However, Kono ('976) disclose an injection molding system that includes a feeder, a desired (metered) amount of molten (liquid) metal flowing in an inclined chamber, a plunger (ram) within a barrel, or chamber, and a piston that creates a negative pressure in the chamber (abstract; column 2, lines 59-67; column 3, lines 1-34; and Figures 1, 2, 8, and 10-12). These features are advantageous for the purpose of obtaining precise control of injection volume and reduction of injection cycle time (column 3, lines 9-34).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the injection molding apparatus and method disclosed by Bradley et al., by using the inclined chamber of the injection molding apparatus of Kono ('976), in order to obtain precise control of the injection volume and reduce the injection cycle time (Kono '976; column 3, lines 9-34).

Bradley and Kono ('976) disclose all elements of claim 1 above, with the exception of the agitating member with agitating wings.

However, Kono ('372) discloses an injection molding system that includes feeding means, a heating cylinder, and a pair of mixers with stirrer motors, or agitating means with wings (abstract; column 2, lines 26-34; column 3, lines 10-23 and 42-50; column 4, lines 27-46; and Figures 1-4). These stirrers (agitating means) are advantageous for the purpose of evenly distributing the heat from the heating elements, and assuring that the ratio of solid and liquid is consistent throughout the thixotropic metal alloy material (column 3, lines 21-23 and 45-50).

It would have been obvious to one of ordinary skill in the art to modify the injection molding machines of Bradley et al. (in view of Kono '976) by adding the stirrers disclosed by Kono ('372), in order to evenly distribute heat from the heating elements, and assure that the ratio of solid and liquid is consistent throughout the thixotropic metal alloy material (Kono '372; column 3, lines 21-23 and 45-50).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Wang et al., Kilbert, Kato et al., Mihelich et al., and Vining et al. references are also cited to show related art. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for

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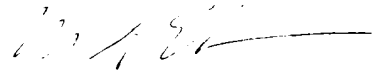
the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK

kpk

September 20, 2001



M. Alexander Elve

PATENT EXAMINER

TC 1700